

**Department of Optoelectronics, University of Kerala, Kariavattom,  
Thiruvananthapuram, Kerala, India – 695581, Ph: 91 471 2308167**

OPTO/Nanophotonics-Phase II/P-6/2014-15

**Quotation Notice**

Quotations are invited for the following items for the research purpose in the Department of Optoelectronics, University of Kerala, Kariavattom, Thiruvananthapuram.

**Particle Size Analyzer (to determine Particle Size, Zeta Potential and molecular weight using a single measuring unit.)**

**Technical specifications:**

**I Measurement type: Particle size and molecular size**

Measurement range:

0.3nm – 6.0 microns (diameter) or better

Measurement principle: Dynamic Light Scattering

Measurement angle: 90°

Accuracy: Better than  $\pm\%$

Precision/Repeatability: Better than  $\pm 2\%$

**II Measurement type: Zeta potential**

Zeta Potential range  $\pm 400$  mv or better

Measurement range: 5 nm or lower– 80 microns or higher(diameter)

Measurement principle: Electrophoretic Light Scattering

Accuracy: 0.12 $\mu$ m.cm/V.s or better for aqueous systems using standard reference materials.

**III Measurement type: Molecular weight.**

Measurement range: 1000 – 20M Dalton or better

Measurement principle: Static Light Scattering using Debye plot (preferable)

Accuracy:  $\pm 10\%$  or better

Typical Temperature control range: 0°C - 90°C  $\pm 0.1$

Light Source: He-Ne laser 633nm, Max 4mW or better,

Safety; Class 1 laser

Software: Operating platforms: Windows 7 or higher

**IV Required disposable, permanent cells/cuvettes needed also to be quoted**

### **Other Specifications**

1. The system must use an avalanche photodiode detector as standard.
2. Digital correlator minimum 25 ns with up to 4000 channels or better
3. Expert advice facility in the software to understand the quality of the report
4. Access to Raw data available to check the quality of the measurement
5. Required disposable capillary cells to ensure lack of cross contamination
6. Capability to report the mean value as well as distribution of zeta potential / electrophoretic mobility and ensure that no separate measurement is required to determine the sign of the charge of zeta potential.
7. Access to all measured data including correlation functions, fitted data points, residuals and all experimental parameters must be available and stored for subsequent examination and recalculation.

### **General conditions**

1. Sealed quotations should be sent to the Professor & Head, Department of Optoelectronics, University of Kerala, Kariavattom-695581, Trivandrum, Kerala.
2. The price quoted should be inclusive of all taxes, duties, delivery, commissioning and other charges.
3. Detailed brochures/information sheets of the products must be furnished.
4. The offers should be valid at least 90 days from the date of opening of the tender.
5. Delivery and installation should be made at the Department of Optoelectronics, University of Kerala, Kariavattom campus, Trivandrum without extra cost
6. Vendors should provide a compliance statement showing the items quoted with the tender specifications.
7. Vendors should provide a list of institutes showing installations of such instruments in India with contact numbers.
8. Warranty: Three years preferred.

**The firms who wish to supply the items are requested to submit the quotations in sealed cover to the undersigned on or before 07.08.2015.**

14.07.2015



A handwritten signature in black ink, appearing to be "J. W.", written over a horizontal line.

Professor & Head

**PROFESSOR & HEAD**  
Department of Optoelectronics  
University of Kerala, Kariavattom  
Thiruvananthapuram-695 581